

PROJECT REPORT

ToyCraft Tales: Tableau's Vision into Toy Manufacturer Data

1. INTRODUCTION

1.1 Project Overview

"ToyCraft Tales" is a data visualization project developed using Tableau to explore the toy manufacturing industry. It aims to uncover insights into market trends, consumer preferences, and regional demand using interactive dashboards based on historical and survey data.

1.2 Purpose

The purpose of this project is to provide toy manufacturers, educators, and retail decision-makers with an intuitive platform that helps them understand toy sales behaviour over time and geography. The dashboard supports data-driven planning, inventory control, and customer satisfaction.

2. IDEATION PHASE

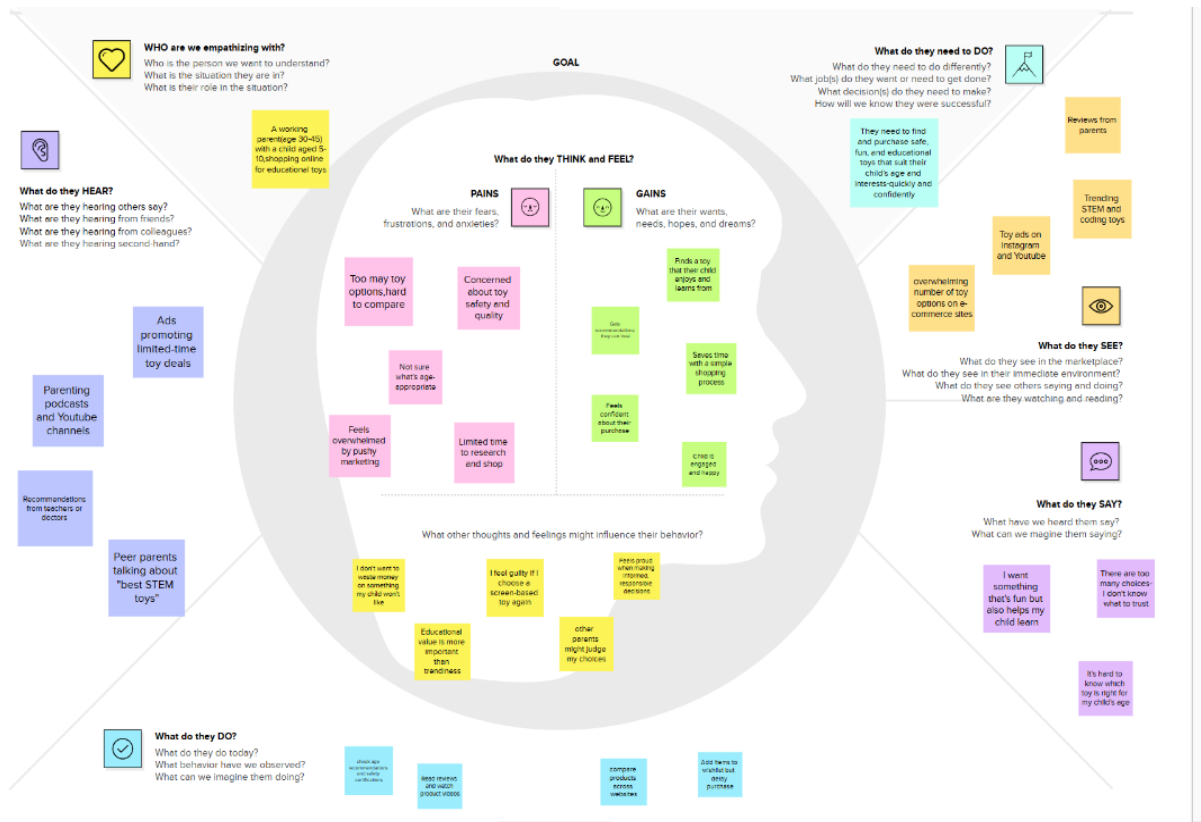
2.1 Problem Statement

Toy manufacturers struggle with understanding consumer preferences, seasonal trends, and regional toy demands. They need a data-driven dashboard to align production and distribution with real-world insights.

2.2 Empathy Map Canvas

- **Who are we empathizing with?** Toy manufacturers, retailers, parents
- **What do they need to do?** Understand toy trends and consumer demands
- **What do they see?** Fragmented reports or guess-based decisions
- **What do they say/do?** Rely on past experience or basic trends

- **What do they hear?** Market pressure, retailer feedback, competitor movements



2.3 Brainstorming

Participants & Ideas:

- *Student 1:* Integrate real-time feedback, Include demographic filters, Create exportable graphs
- *Student 2:* Use survey forms, Allow interactive maps, Add toy type comparison
- *Student 3:* Monthly sales heatmap, Top toys by region, Historical vs current analysis
- *Student 4:* Holiday sales tracker, Toy category popularity, Personalized insights

Grouped Ideas: Dashboard Filters, Visual Comparison Tools, Real-time Feedback Integration, Personalization, Export Options



Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

⌚ 10 minutes to prepare
🕒 1 hour to collaborate
👥 2-6 people recommended

Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

⌚ 10 minutes

- 1 Team gathering**
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.
- 2 Set the goal**
Think about the problem you'll be focusing on solving in the brainstorming session.
- 3 Learn how to use the facilitation tools**
Use the Facilitation Superpowers to run a happy and productive session.

[Open article](#) →

1 Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

⌚ 5 minutes

How might we help busy parents easily find educational and age-appropriate toys that match their child's interests?



Key rules of brainstorming

To run a smooth and productive session

- Stay on topic.
- Defer judgment.
- Go for volume.
- Encourage wild ideas.
- Listen to others.
- If possible, be visual.

2

Brainstorm

Write down any ideas that come to mind that address your problem statement.

⌚ 10 minutes

TIP
You can select a sticky note and hit the pencil (switch to sketch) icon to start drawing!

Person 1

Interactive Survey Tools – Create online surveys for parents and kids to vote on their favorite toys by age group.

Social Media Sentiment Analysis – Use Instagram and YouTube comments to analyze trending toys among teens and children.

Toy Wishlist Polls – Partner with schools to collect kids' toy wishlists anonymously for local preference insights.

Person 2

Heat Map Dashboard – Build a Tableau map showing toy sales intensity by state and month.

Holiday Toy Tracker – Analyze past 5 years of data to find top-selling toy categories during Christmas and summer breaks.

Demand Forecasting Model – Use a simple time series prediction to suggest which toys to pre-stock per region.

Person 3

Toy Recommender Quiz – Design a short quiz for customers to get toy suggestions based on child's age, interests, and learning style.

Visual Filters in Dashboards – Let users explore toy preferences by dragging filters (e.g., Age, State, Season) on Tableau.

One-Click Compare Tool – Help users compare up to 3 toys side-by-side on features like safety, price, learning benefits.

Person 4

Smart Inventory Suggestions – Recommend stock levels to regional managers based on past sales + climate + festivals.

Product Bundling Ideas – Identify best-selling combinations like "STEM Toy + Activity Book" and suggest as bundles.

Low-Performing Toy Alerts – Notify manufacturers when a toy consistently underperforms in a specific region.

3

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

⌚ 20 minutes

TIP
Add descriptive tags to sticky notes to make it easier to find, browse, organize, and categorize numerous ideas as themes within your mind.

Consumer Insight & Preferences

Interactive Survey Tools – Create online surveys for parents and kids to vote on their favorite toys by age group.

Social Media Sentiment Analysis – Use Instagram and YouTube comments to analyze trending toys among teens and children.

Toy Wishlist Polls – Partner with schools to collect kids' toy wishlists anonymously for local preference insights.

Data Analysis & Sales Trends

Heat Map Dashboard – Build a Tableau map showing toy sales intensity by state and month.

Holiday Toy Tracker – Analyze past 5 years of data to find top-selling toy categories during Christmas and summer breaks.

Demand Forecasting Model – Use a simple time series prediction to suggest which toys to pre-stock per region.

Shopping Experience & UX Improvements

Toy Recommender Quiz – Design a short quiz for customers to get toy suggestions based on child's age, interests, and learning style.

Visual Filters in Dashboards – Let users explore toy preferences by dragging filters (e.g., Age, State, Season) on Tableau.

One-Click Compare Tool – Help users compare up to 3 toys side-by-side on features like safety, price, learning benefits.

Business Strategy & Inventory Optimization

Smart Inventory Suggestions – Recommend stock levels to regional managers based on past sales + climate + festivals.

Product Bundling Ideas – Identify best-selling combinations like "STEM Toy + Activity Book" and suggest as bundles.

Low-Performing Toy Alerts – Notify manufacturers when a toy consistently underperforms in a specific region.

4

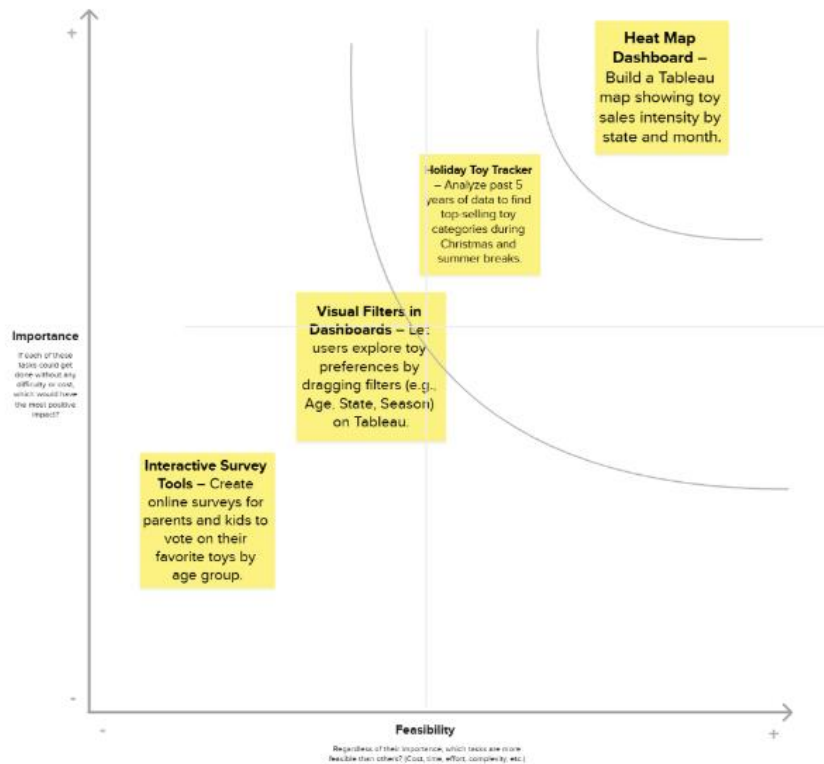
Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes

TIP

Participants can use their cursors to point at where they want to go on the grid. The facilitator can control the spot by using the user pointer holding the **H** key on the keyboard.



3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

Experience Steps include: Entice > Enter > Engage > Exit > Extend.
Touchpoints include registration, dashboard use, export, and re-engagement via emails.

Scenario: (Existing experience through a product or service)	Enter How does someone become aware of this service?	Enter What do people experience as they begin the process?	Engage In the core moments in the process, what happens?	Exit What do people typically experience as the process finishes?	Extend What happens after the experience is over?
Experience steps Where does the process first happen at the center of this scenario typically experience or experience?	Awareness through ads or shared content	Sign up/login to platform	Interact with dashboard & explore toy data	Complete session, export/download insights	Return or re-engage with updated dashboards
Interactions What interactions do they have at each step along the way? • People: Who do they use or talk to? • Places: Where are they? • Things: What digital touchpoints or physical objects do they use?	Social media post, influencer toy reviews, school newsletter	Login via form or Gmail, confirmation email	Use filters, view charts (e.g., heatmaps, trends), submit survey	Download graphs or export filtered view	Email alert, reminder to revisit dashboard, seasonal toy trends
Goals & motivations At each step, what is a person's primary goal or motivation? (Prestate, or "help me avoid...")	Discover popular or educational toys, make informed decisions	Access toy market insights for region or time period	Analyze toy trends for planning or research	Save insights for report, shopping decisions	Stay updated with toy launches, holiday trends, or new insights
Positive moments What steps does a typical person find enjoyable, productive, fun, motivating, insightful, or exciting?	Eye-catching posts or relatable visuals	Seamless login experience	Dashboard is responsive, filters are helpful, data levels insightful	Export is fast, visuals are clean	Follow-up email is relevant and personalized
Negative moments What steps does a typical person find frustrating, confusing, engaging, costly, or time-consuming?	Unclear purpose or cluttered promotion	Long signup or no Gmail option	Too much information, unclear legends, slow loading	Confusion over file type or download format	No updates, irrelevant follow-up content
Areas of opportunity How might we make each step better? What ideas do we have that others suggest?	Better campaign targeting (e.g., parenting groups, toy brands)	One-click Gmail login, simplified form	Add tutorial or onboarding for first-time users	Provide export options with explanations	Let users subscribe to topics or toy categories for updates

3.2 Solution Requirement

- **Functional:** User registration, Dashboard filtering, Survey form submission, Data visualization, Download graphs
- **Non-Functional:** Usability, Scalability, Security, Performance, Accessibility

3.3 Data Flow Diagram

- User > Form input > Data preprocessing (Excel/Tableau Prep) > Tableau dashboard > Filters & Visualizations > Export/Feedback

3.4 Technology Stack


- **Frontend:** Tableau
- **Backend/Data:** Excel, Tableau Prep, Google Forms
- **Hosting:** Tableau Public


4. PROJECT DESIGN

4.1 Problem Solution Fit

Connects the customer need for insights with a visual solution. Provides data clarity for better planning.

Problem-Solution Fit canvas			Purpose / Vision	Version:
Define CS, fit into CL	1. CUSTOMER SEGMENT(S) CS Toy manufacturers, retail store managers, parents, students, educators	6. CUSTOMER LIMITATIONS CL <small>EG. BUDGET, DEVICES</small> Limited data literacy, no access to advanced tools, poor visualization, time-consuming manual work	5. AVAILABLE SOLUTIONS AS <small>PROS & CONS</small> Generic sales reports, manual Excel-based analysis, intuition-driven stocking decisions	Explore AS, differentiate
	2. PROBLEMS / PAINS PR <small>+ ITS FREQUENCY</small> Understand toy trends across regions/seasons, align production with demand, and know consumer preferences	9. PROBLEM ROOT / CAUSE RC Lack of a unified, visual, interactive platform to analyze and interpret toy sales and preference data	7. BEHAVIOR BE <small>+ ITS INTENSITY</small> Manufacturers and managers rely on gut feeling or past sales; students or educators do basic trend analysis manually	
Focus on PR, tap into BE, understand RC	3. TRIGGERS TO ACT TR Sales drops in certain regions, stockouts during holidays, or rising demand for specific categories	10. YOUR SOLUTION SL A Tableau dashboard that visualizes sales by state, toy category, and season; includes survey feedback integration; helps stakeholders make informed, timely decisions	8. CHANNELS of BEHAVIOR CH ONLINE Retail analytics tools, Excel dashboards, printed reports, informal discussions	Extract online & offline CH of BE
	4. EMOTIONS EM <small>BEFORE / AFTER</small> Before: Confused, reactive, unsure of trends; After: Confident, data-driven, better aligned with market		OFFLINE	

 Problem-Solution Fit canvas is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. Designed by Daria Nepriakhina / ideahackers.nl - we tailor ideas to customer behaviour and increase solution adoption probability.

 [IdeaHackers .NL](https://ideahackers.nl)

4.2 Proposed Solution

An interactive Tableau dashboard that visualizes toy sales data filtered by region, category, and season with integrated survey feedback for trend alignment.

4.3 Solution Architecture

User input & dataset → Tableau Prep → Processed dataset → Tableau Dashboard → Filter, visualize, and export features

5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Sprints:

- Sprint 1: Registration & Login (5 story points)
- Sprint 2: Dashboard creation & filtering (6 story points)
- Sprint 3: Survey integration & export (6 story points)
- Sprint 4: Admin control & final testing (3 story points)

Tools Used:

- Mural – For brainstorming, empathy maps, and idea prioritization
- Excel/Google Sheets – For data cleaning and backlog tracking
- Tableau Public – For building dashboards, stories, and sharing
- Draw.io / Diagrams.net – For DFDs and visual planning
- MS Word / PDF Editor – For writing and formatting the final report

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

- **DataRendered:**

The dashboard uses toy manufacturer data from the years 2000 to 2022, covering long-term trends.

- **Preprocessing:**

Before importing into Tableau, the data was cleaned to remove missing values, correctly format dates, and standardize state names to ensure accurate visualization.

- **FiltersUsed:**

Users can explore the data using several interactive filters like:

- Year (to view trends over time)
- State (to analyze region-wise distribution)

- Toy type (to check category-wise sales)
- Season (to understand seasonal patterns)

- **CalculationFields:**

Custom fields were created inside Tableau to enhance analysis, such as:

- % Growth (year-on-year increase in sales)
- Category Rank (ranking of toy types based on demand)
- Sales by Region (total units sold by state/region)

- **DashboardDesign:**

A total of 6 visualizations were created using different chart types including:

- Line Chart, Bar Chart, Heatmap, Treemap, Pie Chart, and Dual-Axis Chart

- **StoryDesign:**

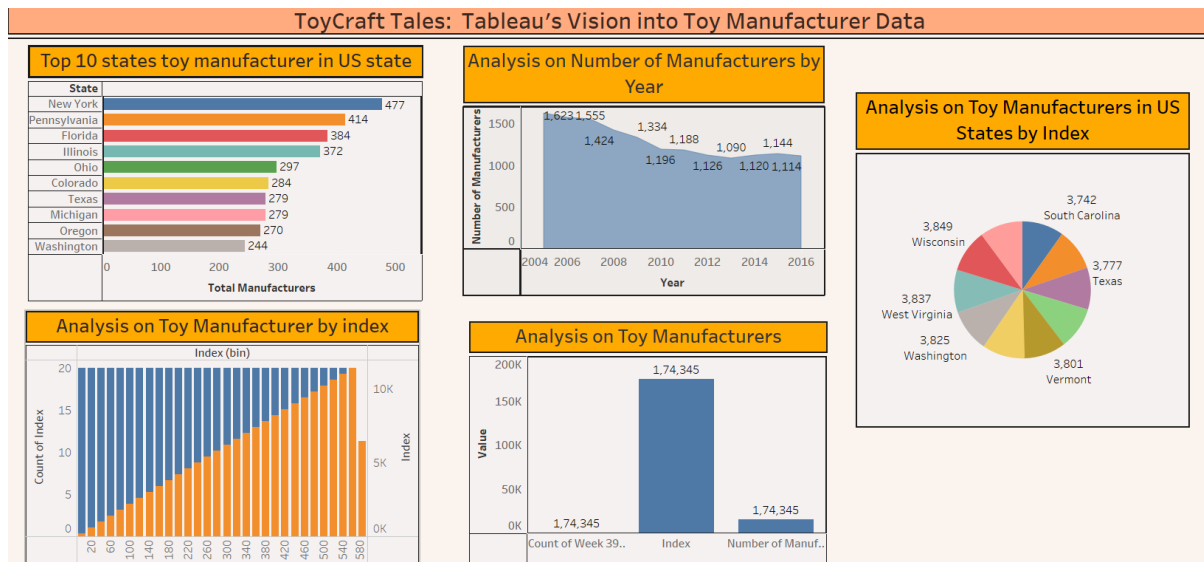
The data was also structured as a Tableau Story with 5 slides/pages, each explaining a part of the data:

1. Intro
2. Market Trends
3. Seasonal Insights
4. Regional Distribution
5. Customer Preferences

7. RESULTS

7.1 Output Screenshots

DASHBOARD



8. ADVANTAGES & DISADVANTAGES

Advantages

- **Easy to Use:** Anyone, including students and business users, can explore the data.
- **Effective Filters:** Quick insights using Year, Region, Season, etc.
- **Live Survey Integration:** Customer feedback can be visualized in real time.

Disadvantages

- **Limited Dataset:** Depends on what's available publicly or collected manually.
- **Feature Limits in Free Version:** Tableau Public restricts some sharing and interactivity features (compared to Tableau Server).

9. CONCLUSION

The **ToyCraft Tales** dashboard effectively visualizes toy industry data to support **better decisions** in manufacturing, marketing, and distribution. It simplifies complex data and presents it in a **clear and actionable format**, helping bridge the **gap between raw data and strategy**.

10. FUTURE SCOPE

- **AI-Based Trend Prediction:** Forecast future toy trends using machine learning.
- **Demographic Filters:** Include age, gender, and urban/rural segmentation.
- **Mobile Compatibility:** Make dashboards easier to use on smartphones/tablets.
- **Inventory Integration:** Connect with real-time inventory systems (ERP) for smarter stocking decisions.

11. APPENDIX

Dataset Link:

<https://www.kaggle.com/datasets/thedevastator/toy-manufacturers-in-us-states?select=Week+39+-+US+Toy+Manufacturers+-+2005+to+2016.hyper>

GitHub Link:

<https://github.com/Valluripalli-NagaPoojitha/ToyCraft-Tales-Tableau-s-Vision-into-Toy-Manufacturer-Data>

